

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1-73 (canceled)

1 74. (previously presented): A probe for laser desorption/ionization mass
2 spectrometry, wherein the probe comprises a sample presenting surface and a moiety that binds
3 to biotin immobilized by chemical bonding to the sample presenting surface, wherein the moiety
4 on the sample presenting surface is bound to the biotin group of at least one biotinylated protein,
5 and wherein the probe further comprises a matrix.

1 75. (previously presented): The probe of claim 74, wherein the moiety binds
2 biotin with an affinity constant of $K_a = 10^{15} \text{ M}^{-1}$.

76-77 (canceled)

1 78. (previously presented): The probe of claim 74, wherein the sample
2 presenting surface comprises two or more moieties that bind to biotin arranged in a
3 predetermined array.

1 79. (previously presented): The probe of claim 74, wherein the moiety that binds
2 to biotin is selected from the group consisting of streptavidin and avidin.

1 80. (previously presented): The probe of claim 74, wherein the moiety is
2 covalently bonded to the sample presenting surface.

1 81. (previously presented): A method comprising the steps of:
2 a) providing a probe comprising a sample presenting surface and a moiety that
3 binds to biotin immobilized by chemical bonding to the sample presenting surface;

4 b) contacting the probe with at least one biotinylated protein under conditions
5 allowing the biotin group to bind to the moiety that binds to biotin; and
6 c) performing laser desorption/ionization mass spectrometry on the proteins
7 bound on the surface of the probe.

1 82. (previously presented): The method of claim 81, further comprising after
2 step b) the step of:
3 washing to remove unbound molecules from the probe.

1 83. (previously presented): The method of claim 81, wherein the moiety binds
2 biotin with an affinity constant of $K_a = 10^{15} \text{ M}^{-1}$.

1 84. (previously presented): The method of claim 81, wherein the probe
2 comprises two or more moieties that bind to biotin arranged in a predetermined array.

1 85. (previously presented): The method of any one of claims 81-84, wherein the
2 moiety is covalently bonded to the sample presenting surface.

1 86. (previously presented): The method of any one of claims 81-84, further
2 comprising the step of applying a matrix after allowing the biotin group to bind to the moiety
3 that binds to biotin.

1 87. (previously presented): The method of any one of claims 81 or 82, wherein
2 the moiety that binds to biotin is selected from the group consisting of streptavidin and avidin.

1 88. (previously presented): The method of claim 87, wherein the moiety is
2 covalently bonded to the sample presenting surface.

1 89. (previously presented): The method of claim 87, further comprising the step
2 of applying a matrix after allowing the biotin group to bind to the moiety that binds to biotin.

1 90. (previously presented): A mass spectrometry apparatus comprising:

2 a) a probe comprising a sample presenting surface and a moiety that binds to
3 biotin immobilized by chemical bonding to the sample presenting surface;

4 b) an energy source that directs laser energy to the sample presenting surface for
5 desorbing and ionizing a biotinylated protein captured by the moiety; and

6 c) a detector that detects the desorbed, ionized biotinylated protein.

1 91. (previously presented): The apparatus of claim 90, further comprising:

2 d) a spectrometer tube into which ionized biotinylated protein is accelerated; and

3 e) means for applying an accelerating electrical potential to the desorbed, ionized
4 protein; wherein the mass spectrometer is a time-of-flight mass spectrometer.

1 92. (previously presented): The apparatus of claim 91, further comprising:

2 f) vacuum means for applying a vacuum to the interior of the tube.

1 93. (previously presented): The apparatus of claim 90, wherein the detector

2 comprises an electron multiplier.

1 94. (previously presented): The apparatus of claim 90, wherein the moiety binds

2 biotin with an affinity constant of $K_a = 10^{15} \text{ M}^{-1}$.

1 95. (previously presented): The apparatus of claim 90, wherein the moiety on the

2 probe is bound to the biotin group of at least one biotinylated protein.

1 96. (previously presented): The apparatus of claim 95, wherein the probe further

2 comprises a matrix.

1 97. (previously presented): The apparatus of claim 90, wherein the probe

2 comprises two or more moieties that bind to biotin arranged in a predetermined array.

1 98. (previously presented): The apparatus of claim 90, wherein the moiety that

2 binds to biotin is selected from the group consisting of streptavidin and avidin.

1 99. (previously presented): The apparatus of claim 91, wherein the moiety that
2 binds to biotin is selected from the group consisting of streptavidin and avidin.

1 100. (previously presented): The apparatus of claim 92, wherein the moiety that
2 binds to biotin is selected from the group consisting of streptavidin and avidin.

1 101. (previously presented): The apparatus of claim 93, wherein the moiety that
2 binds to biotin is selected from the group consisting of streptavidin and avidin.

1 102. (previously presented): The apparatus of claim 90, wherein the moiety is
2 covalently bonded to the sample presenting surface.

1 103. (previously presented): The apparatus of claim 95, wherein the moiety is
2 covalently bonded to the sample presenting surface.

1 104. (previously presented): The apparatus of claim 96, wherein the moiety is
2 covalently bonded to the sample presenting surface.

1 105. (previously presented): The apparatus of claim 98, wherein the moiety is
2 covalently bonded to the sample presenting surface.

1 106. (previously presented): The apparatus of claim 99, wherein the moiety is
2 covalently bonded to the sample presenting surface.

1 107. (previously presented): The apparatus of claim 100, wherein the moiety is
2 covalently bonded to the sample presenting surface.

1 108. (previously presented): The apparatus of claim 101, wherein the moiety is
2 covalently bonded to the sample presenting surface.

 109. (previously presented): The apparatus of claim 90, wherein the energy
source is energy from a nitrogen laser or an Nd-YAG laser.